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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,416	12/27/2000	Yoichi Nagasaki	P/2007-72	6945

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EXAMINER

JOHNSON, EDWARD M

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 01/24/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/750,416

Applicant(s)

NAGASAKI ET AL.

Examiner

Edward M. Johnson

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 December 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Drawings***

1. The drawings are objected to because the single figure is labeled "Fig. 1", which should be deleted, since it is the only figure in the application. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it is not limited to a single paragraph, repeats information given in the title, and in line 14, "also has excellent" appears

Art Unit: 1754

incorrect. Examiner suggests --also have excellent--. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: The specification refers to the figure as "Fig.1", which should be changed to --the figure--, since there is only one figure in the application.

Appropriate correction is required.

#### ***Claim Objections***

5. Claims 9-11 are objected to because of the following informalities: the term "Photocatalyst" appears to be improperly capitalized. Examiner suggests --photocatalyst--. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1754

Claim 1 is unclear as to whether the granules contain a total of 10% of both photocatalyst and silica, or just 10% photocatalyst with a balance of silica.

Claims 3 and 12 appear to contain improper Markush groups. Examiner suggests replacing "selected from" with --selected from the group consisting of--.

Claim 6, "the maximum length portion" and "the minimum length portion" both lack antecedent basis.

Claim 9 is unclear as to whether the granules contain a total of 10-50% of both silica and water, or just 10% silica with a balance of water.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4 and 6-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Kimura WO97/00134 (translated in US 6,228,480).

Regarding claim 1, Kimura '480 discloses photocatalyst comprising 50% titanium dioxide fine granule and 25% silica (see

Art Unit: 1754

Examples 24-25), and also comprising silica particles (see column 5, lines 38-41).

Regarding claim 8, Kimura '480 discloses a mixture of photocatalyst comprising 50% titanium dioxide fine granule and 25% silica (see Examples 24-25), molding (see column 6, lines 19-22), and drying (see column 5, lines 51-53).

Regarding claims 2-3 and 11, Kimura '480 discloses soda lime glass plate (see column 18, lines 33-34 and Example 74).

Regarding claims 4 and 13, Kimura '480 discloses titanium dioxide (title, abstract).

Regarding claim 6, Kimura '480 discloses dimensions of 1 mm and 5 cm (see Example 74).

Regarding claim 7, Kimura '480 discloses a porous structure (see column 6, lines 46-48).

Regarding claims 9-10, Kimura '480 discloses 25% silica without alkali (see Examples 24-25).

Regarding claim 12, apparatus limitations are not given undue weight in process claims. However, Kimura '480 discloses granules (see Examples 24-25), which would inherently be made by a granulator apparatus.

Regarding claim 14, Kimura '480 discloses drying at 50-200 degrees (see column 10, lines 52-55) and coating at 130 degrees (see Example 21).

Art Unit: 1754

10. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Taoda et al. US 5,981,425.

Regarding claim 1, Taoda '425 discloses photocatalyst-containing composition comprising silica (see column 8, lines 11-15 and column 9, lines 50-51) and 3-30% weight photocatalyst (see column 8, lines 25-30, Example 4, and Table 2), in the form of fine granules (see column 5, lines 17-29).

Regarding claims 2-3, Taoda '425 discloses activated carbon (see column 2, lines 15-16).

Regarding claim 4, Taoda '425 discloses titanium dioxide (abstract).

Regarding claim 6, Taoda '425 discloses diameters of 1 micron to a few mm (see column 2, lines 62-64).

Regarding claim 7, Taoda '425 discloses porous titanium oxide (see column 2, line 9).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Art Unit: 1754

12. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taoda '425.

Taoda '425 fails to disclose a silica particle diameter of 30-50nm.

Heller '169 discloses a silica diameter of less than 50 nm.

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silica diameter of Heller in the catalyst of Taoda because Heller discloses his silica diameter so as not to prevent photooxidation or photoreduction reactions (see column 5, lines 64-67) and Taoda discloses colloidal silica (column 8, lines 11-15) and spherical silica gel with a diameter of "about 10 microns" (see Reference Example 2), which would obviously, to one of ordinary skill, suggest a range around and extending below 10 microns.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagasaki et al. US 2001/0006933 discloses photocatalyst granules and a method for preparation (see abstract and Examples); Hatano et al. US 9,919,726 discloses a method for making photocatalyst material comprising coating and heat treating (see abstract and Examples); and Hagihara et al. US 6,383,980 discloses



Art Unit: 1754

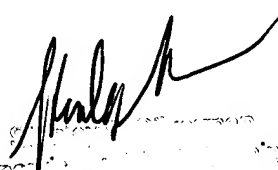
photocatalytic titanium dioxide powder comprising layer-formed particles with a porous supported second layer (see abstract and Examples).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

EMJ  
January 17, 2003



STANLEY S. SILVERMAN  
Supervisor